

SEQUENCE LISTING

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 SCHNEIDER, ARMIN

<120> A PROCESS FOR IN VITRO DIFFERENTIATION OF NEURAL STEM
 CELLS OR OF CELLS DERIVED FROM NEURONAL STEM CELLS

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<140> 10/584,341

<141> 2006-06-23

<150> PCT/EP04/014673

<151> 2004-12-23

<150> DE 10361444.3

<151> 2003-12-23

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<170> PatentIn Ver. 3.3

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<212> PRT

<213> Homo sapiens

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Ser	Gly	Ile	His	Ser	Gly	Ala	Thr	Thr	Thr	Ala	Pro	Ser	Leu	Ser	Gly
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Lys	Gly	Asn	Pro	Glu	Glu	Glu	Asp	Val	Asp	Thr	Ser	Gln	Val	Leu	Tyr
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Glu	Trp	Glu	Gln	Gly	Phe	Ser	Gln	Ser	Phe	Thr	Gln	Glu	Gln	Val	Ala
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Asp	Ile	Asp	Gly	Gln	Tyr	Ala	Met	Thr	Arg	Ala	Gln	Arg	Val	Arg	Ala
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 Gln Leu Ser Lys Lys Glu Ala Ser Arg His Ala Ile Met Arg Ser Pro
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 Gln Met Val Ser Ala Ile Val Arg Thr Met Gln Asn Thr Asn Asp Val
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 Glu Thr Ala Arg Cys Thr Ala Gly Thr Leu His Asn Leu Ser His His
 210 215 220
 Arg Glu Gly Leu Leu Ala Ile Phe Lys Ser Gly Gly Ile Pro Ala Leu
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 Val Lys Met Leu Gly Ser Pro Val Asp Ser Val Leu Phe Tyr Ala Ile
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 Thr Thr Leu His Asn Leu Leu Leu His Gln Glu Gly Ala Lys Met Ala
 260 265 270
 Val Arg Leu Ala Gly Gly Leu Gln Lys Met Val Ala Leu Leu Asn Lys
 275 280 285
 Thr Asn Val Lys Phe Leu Ala Ile Thr Thr Asp Cys Leu Gln Ile Leu
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 Ala Tyr Gly Asn Gln Glu Ser Lys Leu Ile Ile Leu Ala Ser Gly Gly
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 Pro Gln Ala Leu Val Asn Ile Met Arg Thr Tyr Thr Tyr Glu Lys Leu
 325 330 335
 Leu Trp Thr Thr Ser Arg Val Leu Lys Val Leu Ser Val Cys Ser Ser
 340 345 350
 Asn Lys Pro Ala Ile Val Glu Ala Gly Gly Met Gln Ala Leu Gly Leu
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 His Leu Thr Asp Pro Ser Gln Arg Leu Val Gln Asn Cys Leu Trp Thr
 370 375 380
 Leu Arg Asn Leu Ser Asp Ala Ala Thr Lys Gln Glu Gly Met Glu Gly
 385 390 395 400
 Leu Leu Gly Thr Leu Val Gln Leu Leu Gly Ser Asp Asp Ile Asn Val
 405 410 415
 Val Thr Cys Ala Ala Gly Ile Leu Ser Asn Leu Thr Cys Asn Asn Tyr
 420 425 430
 Lys Asn Lys Met Met Val Cys Gln Val Gly Gly Ile Glu Ala Leu Val
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Arg Thr Val Leu Arg Ala Gly Asp Arg Glu Asp Ile Thr Glu Pro Ala
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 Ile Cys Ala Leu Arg His Leu Thr Ser Arg His Gln Glu Ala Glu Met
 465 470 475 480
 Ala Gln Asn Ala Val Arg Leu His Tyr Gly Leu Pro Val Val Val Lys
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 Leu Leu His Pro Pro Ser His Trp Pro Leu Ile Lys Ala Thr Val Gly
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 Glu Gln Gly Ala Ile Pro Arg Leu Val Gln Leu Leu Val Arg Ala His
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 Val Glu Gly Val Arg Met Glu Glu Ile Val Glu Gly Cys Thr Gly Ala
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 580 585 590
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 Asn Ile Gln Arg Val Ala Ala Gly Val Leu Cys Glu Leu Ala Gln Asp
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 Lys Glu Ala Ala Glu Ala Ile Glu Ala Glu Gly Ala Thr Ala Pro Leu
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 Thr Glu Leu Leu His Ser Arg Asn Glu Gly Val Ala Thr Tyr Ala Ala
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 Ala Val Leu Phe Arg Met Ser Glu Asp Lys Pro Gln Asp Tyr Lys Lys
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 Glu Pro Leu Gly Tyr Arg Gln Asp Asp Pro Ser Tyr Arg Ser Phe His
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 Ser Gly Gly Tyr Gly Gln Asp Ala Leu Gly Met Asp Pro Met Met Glu
 725 730 735
 His Glu Met Gly Gly His His Pro Gly Ala Asp Tyr Pro Val Asp Gly
 740 745 750

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<213> Homo sapiens

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Asp Arg Pro Gln Glu Val Ser Tyr Thr Asp Thr Lys Val Ile Gly Asn
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Gly Ser Phe Gly Val Val Tyr Gln Ala Lys Leu Cys Asp Ser Gly Glu
 65 70 75 80

Leu Val Ala Ile Lys Lys Val Leu Gln Asp Lys Arg Phe Lys Asn Arg
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Glu Leu Gln Ile Met Arg Lys Leu Asp His Cys Asn Ile Val Arg Leu
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Arg Tyr Phe Phe Tyr Ser Ser Gly Glu Lys Lys Asp Glu Val Tyr Leu
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Asn Leu Val Leu Asp Tyr Val Pro Glu Thr Val Tyr Arg Val Ala Arg
 130 135 140

His Tyr Ser Arg Ala Lys Gln Thr Leu Pro Val Ile Tyr Val Lys Leu
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Tyr Met Tyr Gln Leu Phe Arg Ser Leu Ala Tyr Ile His Ser Phe Gly
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Ile Cys His Arg Asp Ile Lys Pro Gln Asn Leu Leu Leu Asp Pro Asp
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Thr Ala Val Leu Lys Leu Cys Asp Phe Gly Ser Ala Lys Gln Leu Val
 195 200 205

Arg Gly Glu Pro Asn Val Ser Tyr Ile Cys Ser Arg Tyr Tyr Arg Ala
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Pro Glu Leu Ile Phe Gly Ala Thr Asp Tyr Thr Ser Ser Ile Asp Val
 225 230 235 240

Trp Ser Ala Gly Cys Val Leu Ala Glu Leu Leu Leu Gly Gln Pro Ile
 245 250 255
 Phe Pro Gly Asp Ser Gly Val Asp Gln Leu Val Glu Ile Ile Lys Val
 260 265 270
 Leu Gly Thr Pro Thr Arg Glu Gln Ile Arg Glu Met Asn Pro Asn Tyr
 275 280 285
 Thr Glu Phe Lys Phe Pro Gln Ile Lys Ala His Pro Trp Thr Lys Val
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 Phe Arg Pro Arg Thr Pro Pro Glu Ala Ile Ala Leu Cys Ser Arg Leu
 305 310 315 320
 Leu Glu Tyr Thr Pro Thr Ala Arg Leu Thr Pro Leu Glu Ala Cys Ala
 325 330 335
 His Ser Phe Phe Asp Glu Leu Arg Asp Pro Asn Val Lys Leu Pro Asn
 340 345 350
 Gly Arg Asp Thr Pro Ala Leu Phe Asn Phe Thr Thr Gln Glu Leu Ser
 355 360 365
 Ser Asn Pro Pro Leu Ala Thr Ile Leu Ile Pro Pro His Ala Arg Ile
 370 375 380
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 Ser Asn Ser Thr
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 35 40 45
 Arg Arg Leu Ala Arg Gln Leu Leu Leu Leu Trp Leu Leu Glu Ala
 50 55 60
 Pro Leu Leu Leu Gly Val Arg Ala Gln Ala Ala Gly Gln Gly Pro Gly
 65 70 75 80

Gln	Gly	Pro	Gly	Pro	Gly	Gln	Gln	Pro	Pro	Pro	Pro	Pro	Pro	Gln	Gln	
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Gln	Gln	Ser	Gly	Gln	Gln	Tyr	Asn	Gly	Glu	Arg	Gly	Ile	Ser	Val	Pro	
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Lys Phe Ala Glu Asp Gly Ala Arg Thr Val Ala Gln Gly Thr Lys Lys
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 Glu Gly Cys Thr Ile Leu Phe Met Met Leu Tyr Phe Phe Ser Met Ala
 405 410 415
 Ser Ser Ile Trp Trp Val Ile Leu Ser Leu Thr Trp Phe Leu Ala Ala
 420 425 430
 Gly Met Lys Trp Gly His Glu Ala Ile Glu Ala Asn Ser Gln Tyr Phe
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 His Leu Ala Ala Trp Ala Val Pro Ala Ile Lys Thr Ile Thr Ile Leu
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 Ala Leu Gly Gln Val Asp Gly Asp Val Leu Ser Gly Val Cys Phe Val
 465 470 475 480
 Gly Leu Asn Asn Val Asp Ala Leu Arg Gly Phe Val Leu Ala Pro Leu
 485 490 495
 Phe Val Tyr Leu Phe Ile Gly Thr Ser Phe Leu Leu Ala Gly Phe Val
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 Ser Tyr Ala Ile Pro Cys Pro His Leu Gln Ala Gly Gly Gly Ala Pro
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 Pro His Pro Pro Met Ser Pro Asp Phe Thr Val Phe Met Ile Lys Tyr
 595 600 605
 Leu Met Thr Leu Ile Val Gly Ile Thr Ser Gly Phe Trp Ile Trp Ser
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<212> PRT

<213> Homo sapiens

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Ile Pro Asp His Gly Phe Cys Gln Pro Ile Ser Ile Pro Leu Cys Thr
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Asp Ile Ala Tyr Asn Gln Thr Ile Met Pro Asn Leu Leu Gly His Thr
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Asn Gln Glu Asp Ala Gly Leu Glu Val His Gln Phe Tyr Pro Leu Val
      65           70           75           80

Lys Val Gln Cys Ser Pro Glu Leu Arg Phe Phe Leu Cys Ser Met Tyr
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Ala Pro Val Cys Thr Val Leu Glu Gln Ala Ile Pro Pro Cys Arg Ser
      100           105           110

Ile Cys Glu Arg Ala Arg Gln Gly Cys Glu Ala Leu Met Asn Lys Phe
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Gly Phe Gln Trp Pro Glu Arg Leu Arg Cys Glu His Phe Pro Arg His
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Pro Ala Leu Leu Thr Thr Ala Pro Pro Pro Gly Leu Gln Pro Gly Ala
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Gly Gly Thr Pro Gly Gly Pro Gly Gly Gly Ala Pro Pro Arg Tyr
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Ala Thr Leu Glu His Pro Phe His Cys Pro Arg Val Leu Lys Val Pro
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Ser Tyr Leu Ser Tyr Lys Phe Leu Gly Glu Arg Asp Cys Ala Ala Pro
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Cys Glu Pro Ala Arg Pro Asp Gly Ser Met Phe Phe Ser Gln Glu Glu
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Thr Arg Phe Ala Arg Leu Trp Ile Leu Thr Trp Ser Val Leu Cys Cys
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Ala Ser Thr Phe Phe Thr Val Thr Thr Tyr Leu Val Asp Met Gln Arg
      260           265           270

Phe Arg Tyr Pro Glu Arg Pro Ile Ile Phe Leu Ser Gly Cys Tyr Thr
      275           280           285

Met Val Ser Val Ala Tyr Ile Ala Gly Phe Val Leu Gln Glu Arg Val
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Val Cys Asn Glu Arg Phe Ser Glu Asp Gly Tyr Arg Thr Val Val Gln
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 Gly Thr Lys Lys Glu Gly Cys Thr Ile Leu Phe Met Met Leu Tyr Phe
 325 330 335
 Phe Ser Met Ala Ser Ser Ile Trp Trp Val Ile Leu Ser Leu Thr Trp
 340 345 350
 Phe Leu Ala Ala Gly Met Lys Trp Gly His Glu Ala Ile Glu Ala Asn
 355 360 365
 Ser Gln Tyr Phe His Leu Ala Ala Trp Ala Val Pro Ala Val Lys Thr
 370 375 380
 Ile Thr Ile Leu Ala Met Gly Gln Ile Asp Gly Asp Leu Leu Ser Gly
 385 390 395 400
 Val Cys Phe Val Gly Leu Asn Ser Leu Asp Pro Leu Arg Gly Phe Val
 405 410 415
 Leu Ala Pro Leu Phe Val Tyr Leu Phe Ile Gly Thr Ser Phe Leu Leu
 420 425 430
 Ala Gly Phe Val Ser Leu Phe Arg Ile Arg Thr Ile Met Lys His Asp
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 Gly Thr Lys Thr Glu Lys Leu Glu Arg Leu Met Val Arg Ile Gly Val
 450 455 460
 Phe Ser Val Leu Tyr Thr Val Pro Ala Thr Ile Val Ile Ala Cys Tyr
 465 470 475 480
 Phe Tyr Glu Gln Ala Phe Arg Glu His Trp Glu Arg Ser Trp Val Ser
 485 490 495
 Gln His Cys Lys Ser Leu Ala Ile Pro Cys Pro Ala His Tyr Thr Pro
 500 505 510
 Arg Met Ser Pro Asp Phe Thr Val Tyr Met Ile Lys Tyr Leu Met Thr
 515 520 525
 Leu Ile Val Gly Ile Thr Ser Gly Phe Trp Ile Trp Ser Gly Lys Thr
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 Gly Glu Thr Thr Val
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 <213> Homo sapiens

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Leu	Arg	Met	Cys	Gln	Asp	Leu	Pro	Tyr	Asn	Thr	Thr	Phe	Met	Pro	Asn
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Leu	Leu	Asn	His	Tyr	Asp	Gln	Gln	Thr	Ala	Ala	Leu	Ala	Met	Glu	Pro
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Phe	His	Pro	Met	Val	Asn	Leu	Asp	Cys	Ser	Arg	Asp	Phe	Arg	Pro	Phe
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Leu	Cys	Ala	Leu	Tyr	Ala	Pro	Ile	Cys	Met	Glu	Tyr	Gly	Arg	Val	Thr
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Tyr	Gly	Phe	Trp	Cys	Pro	Arg	Glu	Leu	Lys	Ile	Asp	Pro	Asp	Leu	Gly
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Ile	Ser	Ile	Ile	Cys	Leu	Ser	Ala	Thr	Leu	Phe	Thr	Phe	Leu	Thr	Phe
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Tyr	Ala	Val	Cys	Tyr	Met	Met	Val	Ser	Leu	Ile	Phe	Phe	Ile	Gly	Phe
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Lys	Ala	Ser	Thr	Val	Thr	Gln	Gly	Ser	His	Asn	Lys	Ala	Cys	Thr	Met
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Gly	Ile	Pro	Gly	Thr	Leu	Thr	Ile	Ile	Leu	Leu	Ala	Met	Asn	Lys	Ile	340	345	350	
Glu	Gly	Asp	Asn	Ile	Ser	Gly	Val	Cys	Phe	Val	Gly	Leu	Tyr	Asp	Val	355	360	365	
Asp	Ala	Leu	Arg	Tyr	Phe	Val	Leu	Ala	Pro	Leu	Cys	Leu	Tyr	Val	Val	370	375	380	
Val	Gly	Val	Ser	Leu	Leu	Leu	Ala	Gly	Ile	Ile	Ser	Leu	Asn	Arg	Val	385	390	395	400
Arg	Ile	Glu	Ile	Pro	Leu	Glu	Lys	Glu	Asn	Gln	Asp	Lys	Leu	Val	Lys	405	410	415	
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Leu	Val	Val	Ile	Gly	Cys	Tyr	Phe	Tyr	Glu	Gln	Ala	Tyr	Arg	Gly	Ile	435	440	445	
Trp	Glu	Thr	Thr	Trp	Ile	Gln	Glu	Arg	Cys	Arg	Glu	Tyr	His	Ile	Pro	450	455	460	
Cys	Pro	Tyr	Gln	Val	Thr	Gln	Met	Ser	Arg	Pro	Asp	Leu	Ile	Leu	Phe	465	470	475	480
Leu	Met	Lys	Tyr	Leu	Met	Ala	Leu	Ile	Val	Gly	Ile	Pro	Ser	Val	Phe	485	490	495	
Trp	Val	Gly	Ser	Lys	Lys	Thr	Cys	Phe	Glu	Trp	Ala	Ser	Phe	Phe	His	500	505	510	
Gly	Arg	Arg	Lys	Lys	Glu	Ile	Val	Asn	Glu	Ser	Arg	Gln	Val	Leu	Gln	515	520	525	
Glu	Pro	Asp	Phe	Ala	Gln	Ser	Leu	Leu	Arg	Asp	Pro	Asn	Thr	Pro	Ile	530	535	540	
Ile	Arg	Lys	Ser	Arg	Gly	Thr	Ser	Thr	Gln	Gly	Thr	Ser	Thr	His	Ala	545	550	555	560
Ser	Ser	Thr	Gln	Leu	Ala	Met	Val	Asp	Asp	Gln	Arg	Ser	Lys	Ala	Gly	565	570	575	
Ser	Ile	His	Ser	Lys	Val	Ser	Ser	Tyr	His	Gly	Ser	Leu	His	Arg	Ser	580	585	590	
Arg	Asp	Gly	Arg	Tyr	Thr	Pro	Cys	Ser	Tyr	Arg	Gly	Met	Glu	Glu	Arg	595	600	605	

Leu Pro His Gly Ser Met Ser Arg Leu Thr Asp His Ser Arg His Ser
610 615 620

Ser Ser His Arg Leu Asn Glu Gln Ser Arg His Ser Ser Ile Arg Asp
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Arg Val Ile Glu Glu Asp Gly Thr Ser Ala
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<212> PRT

<213> Homo sapiens

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Arg Ile Ser Met Cys Gln Asn Leu Gly Tyr Asn Val Thr Lys Met Pro
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Asn Leu Val Gly His Glu Leu Gln Thr Asp Ala Glu Leu Gln Leu Thr
65 70 75 80

Thr Phe Thr Pro Leu Ile Gln Tyr Gly Cys Ser Ser Gln Leu Gln Phe
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Phe Leu Cys Ser Val Tyr Val Pro Met Cys Thr Glu Lys Ile Asn Ile
100 105 110

Pro Ile Gly Pro Cys Gly Gly Met Cys Leu Ser Val Lys Arg Arg Cys
115 120 125

Glu Pro Val Leu Lys Glu Phe Gly Phe Ala Trp Pro Glu Ser Leu Asn
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Cys Ser Lys Phe Pro Pro Gln Asn Asp His Asn His Met Cys Met Glu
145 150 155 160

Gly Pro Gly Asp Glu Glu Val Pro Leu Pro His Lys Thr Pro Ile Gln
165 170 175

Pro Gly Glu Glu Cys His Ser Val Gly Thr Asn Ser Asp Gln Tyr Ile
180 185 190

Trp Val Lys Arg Ser Leu Asn Cys Val Leu Lys Cys Gly Tyr Asp Ala
195 200 205

Gly	Leu	Tyr	Ser	Arg	Ser	Ala	Lys	Glu	Phe	Thr	Asp	Ile	Trp	Met	Ala		
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Val	Trp	Ala	Ser	Leu	Cys	Phe	Ile	Ser	Thr	Ala	Phe	Thr	Val	Leu	Thr		
225					230					235					240		
Phe	Leu	Ile	Asp	Ser	Ser	Arg	Phe	Ser	Tyr	Pro	Glu	Arg	Pro	Ile	Ile		
				245					250					255			
Phe	Leu	Ser	Met	Cys	Tyr	Asn	Ile	Tyr	Ser	Ile	Ala	Tyr	Ile	Val	Arg		
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Leu	Thr	Val	Gly	Arg	Glu	Arg	Ile	Ser	Cys	Asp	Phe	Glu	Glu	Ala	Ala		
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Glu	Pro	Val	Leu	Ile	Gln	Glu	Gly	Leu	Lys	Asn	Thr	Gly	Cys	Ala	Ile		
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Ile	Phe	Leu	Leu	Met	Tyr	Phe	Phe	Gly	Met	Ala	Ser	Ser	Ile	Trp	Trp		
305					310					315					320		
Val	Ile	Leu	Thr	Leu	Thr	Trp	Phe	Leu	Ala	Ala	Gly	Leu	Lys	Trp	Gly		
				325					330					335			
His	Glu	Ala	Ile	Glu	Met	His	Ser	Ser	Tyr	Phe	His	Ile	Ala	Ala	Trp		
			340					345					350				
Ala	Ile	Pro	Ala	Val	Lys	Thr	Ile	Val	Ile	Leu	Ile	Met	Arg	Leu	Val		
		355					360					365					
Asp	Ala	Asp	Glu	Leu	Thr	Gly	Leu	Cys	Tyr	Val	Gly	Asn	Gln	Asn	Leu		
		370				375					380						
Asp	Ala	Leu	Thr	Gly	Phe	Val	Val	Ala	Pro	Leu	Phe	Thr	Tyr	Leu	Val		
385					390					395					400		
Ile	Gly	Thr	Leu	Phe	Ile	Ala	Ala	Gly	Leu	Val	Ala	Leu	Phe	Lys	Ile		
				405					410					415			
Arg	Ser	Asn	Leu	Gln	Lys	Asp	Gly	Thr	Lys	Thr	Asp	Lys	Leu	Glu	Arg		
			420					425					430				
Leu	Met	Val	Lys	Ile	Gly	Val	Phe	Ser	Val	Leu	Tyr	Thr	Val	Pro	Ala		
		435					440					445					
Thr	Cys	Val	Ile	Ala	Cys	Tyr	Phe	Tyr	Glu	Ile	Ser	Asn	Trp	Ala	Leu		
		450				455					460						
Phe	Arg	Tyr	Ser	Ala	Asp	Asp	Ser	Asn	Met	Ala	Val	Glu	Met	Leu	Lys		
465					470					475					480		
Thr	Phe	Met	Ser	Leu	Leu	Val	Gly	Ile	Thr	Ser	Gly	Met	Trp	Ile	Trp		
				485					490					495			
Ser	Ala	Lys	Ser	Leu	His	Thr	Trp	Gln	Lys	Cys	Ser	Asn	Arg	Leu	Val		
			500					505					510				

Asn Ser Gly Lys Val Lys Arg Glu Lys Arg Gly Asn Gly Trp Val Lys
 515 520 525

Pro Gly Lys Gly Ser Glu Thr Val Val
 530 535

<210> 7
 <211> 585
 <212> PRT
 <213> Homo sapiens

<400> 7
 Met Ala Arg Pro Asp Pro Ser Ala Pro Pro Ser Leu Leu Leu Leu Leu
 1 5 10 15

Leu Ala Gln Leu Val Gly Arg Ala Ala Ala Ser Lys Ala Pro Val
 20 25 30

Cys Gln Glu Ile Thr Val Pro Met Cys Arg Gly Ile Gly Tyr Asn Leu
 35 40 45

Thr His Met Pro Asn Gln Phe Asn His Asp Thr Gln Asp Glu Ala Gly
 50 55 60

Leu Glu Val His Gln Phe Trp Pro Leu Val Glu Ile Gln Cys Ser Pro
 65 70 75 80

Asp Leu Arg Phe Phe Leu Cys Thr Met Tyr Thr Pro Ile Cys Leu Pro
 85 90 95

Asp Tyr His Lys Pro Leu Pro Pro Cys Arg Ser Val Cys Glu Arg Ala
 100 105 110

Lys Ala Gly Cys Ser Pro Leu Met Arg Gln Tyr Gly Phe Ala Trp Pro
 115 120 125

Glu Arg Met Ser Cys Asp Arg Leu Pro Val Leu Gly Arg Asp Ala Glu
 130 135 140

Val Leu Cys Met Asp Tyr Asn Arg Ser Glu Ala Thr Thr Ala Pro Pro
 145 150 155 160

Arg Pro Phe Pro Ala Lys Pro Thr Leu Pro Gly Pro Pro Gly Ala Pro
 165 170 175

Ala Ser Gly Gly Glu Cys Pro Ala Gly Gly Pro Phe Val Cys Lys Cys
 180 185 190

Arg Glu Pro Phe Val Pro Ile Leu Lys Glu Ser His Pro Leu Tyr Asn
 195 200 205

Lys Val Arg Thr Gly Gln Val Pro Asn Cys Ala Val Pro Cys Tyr Gln
 210 215 220

Pro Ser Phe Ser Ala Asp Glu Arg Thr Phe Ala Thr Phe Trp Ile Gly
 225 230 235 240

Leu Trp Ser Val Leu Cys Phe Ile Ser Thr Ser Thr Thr Val Ala Thr
 245 250 255
 Phe Leu Ile Asp Met Asp Thr Phe Arg Tyr Pro Glu Arg Pro Ile Ile
 260 265 270
 Phe Leu Ser Ala Cys Tyr Leu Cys Val Ser Leu Gly Phe Leu Val Arg
 275 280 285
 Leu Val Val Gly His Ala Ser Val Ala Cys Ser Arg Glu His Asn His
 290 295 300
 Ile His Tyr Glu Thr Thr Gly Pro Ala Leu Cys Thr Ile Val Phe Leu
 305 310 315 320
 Leu Val Tyr Phe Phe Gly Met Ala Ser Ser Ile Trp Trp Val Ile Leu
 325 330 335
 Ser Leu Thr Trp Phe Leu Ala Ala Ala Met Lys Trp Gly Asn Glu Ala
 340 345 350
 Ile Ala Gly Tyr Gly Gln Tyr Phe His Leu Ala Ala Trp Leu Ile Pro
 355 360 365
 Ser Val Lys Ser Ile Thr Ala Leu Ala Leu Ser Ser Val Asp Gly Asp
 370 375 380
 Pro Val Ala Gly Ile Cys Tyr Val Gly Asn Gln Asn Leu Asn Ser Leu
 385 390 395 400
 Arg Arg Phe Val Leu Gly Pro Leu Val Leu Tyr Leu Leu Val Gly Thr
 405 410 415
 Leu Phe Leu Leu Ala Gly Phe Val Ser Leu Phe Arg Ile Arg Ser Val
 420 425 430
 Ile Lys Gln Gly Gly Thr Lys Thr Asp Lys Leu Glu Lys Leu Met Ile
 435 440 445
 Arg Ile Gly Ile Phe Thr Leu Leu Tyr Thr Val Pro Ala Ser Ile Val
 450 455 460
 Val Ala Cys Tyr Leu Tyr Glu Gln His Tyr Arg Glu Ser Trp Glu Ala
 465 470 475 480
 Ala Leu Thr Cys Ala Cys Pro Gly His Asp Thr Gly Gln Pro Arg Ala
 485 490 495
 Lys Pro Glu Tyr Trp Val Leu Met Leu Lys Tyr Phe Met Cys Leu Val
 500 505 510
 Val Gly Ile Thr Ser Gly Val Trp Ile Trp Ser Gly Lys Thr Val Glu
 515 520 525
 Ser Trp Arg Arg Phe Thr Ser Arg Cys Cys Cys Arg Pro Arg Arg Gly
 530 535 540

His Lys Ser Gly Gly Ala Met Ala Ala Gly Asp Tyr Pro Glu Ala Ser
545 550 555 560

Ala Ala Leu Thr Gly Arg Thr Gly Pro Pro Gly Pro Ala Ala Thr Tyr
565 570 575

His Lys Gln Val Ser Leu Ser His Val
580 585

<210> 8
<211> 706
<212> PRT
<213> Homo sapiens

<400> 8
Met Glu Met Phe Thr Phe Leu Leu Thr Cys Ile Phe Leu Pro Leu Leu
1 5 10 15

Arg Gly His Ser Leu Phe Thr Cys Glu Pro Ile Thr Val Pro Arg Cys
20 25 30

Met Lys Met Ala Tyr Asn Met Thr Phe Phe Pro Asn Leu Met Gly His
35 40 45

Tyr Asp Gln Ser Ile Ala Ala Val Glu Met Glu His Phe Leu Pro Leu
50 55 60

Ala Asn Leu Glu Cys Ser Pro Asn Ile Glu Thr Phe Leu Cys Lys Ala
65 70 75 80

Phe Val Pro Thr Cys Ile Glu Gln Ile His Val Val Pro Pro Cys Arg
85 90 95

Lys Leu Cys Glu Lys Val Tyr Ser Asp Cys Lys Lys Leu Ile Asp Thr
100 105 110

Phe Gly Ile Arg Trp Pro Glu Glu Leu Glu Cys Asp Arg Leu Gln Tyr
115 120 125

Cys Asp Glu Thr Val Pro Val Thr Phe Asp Pro His Thr Glu Phe Leu
130 135 140

Gly Pro Gln Lys Lys Thr Glu Gln Val Gln Arg Asp Ile Gly Phe Trp
145 150 155 160

Cys Pro Arg His Leu Lys Thr Ser Gly Gly Gln Gly Tyr Lys Phe Leu
165 170 175

Gly Ile Asp Gln Cys Ala Pro Pro Cys Pro Asn Met Tyr Phe Lys Ser
180 185 190

Asp Glu Leu Glu Phe Ala Lys Ser Phe Ile Gly Thr Val Ser Ile Phe
195 200 205

Cys Leu Cys Ala Thr Leu Phe Thr Phe Leu Thr Phe Leu Ile Asp Val
210 215 220

Arg	Arg	Phe	Arg	Tyr	Pro	Glu	Arg	Pro	Ile	Ile	Tyr	Tyr	Ser	Val	Cys	225	230	235	240
Tyr	Ser	Ile	Val	Ser	Leu	Met	Tyr	Phe	Ile	Gly	Phe	Leu	Leu	Gly	Asp	245	250	255	
Ser	Thr	Ala	Cys	Asn	Lys	Ala	Asp	Glu	Lys	Leu	Glu	Leu	Gly	Asp	Thr	260	265	270	
Val	Val	Leu	Gly	Ser	Gln	Asn	Lys	Ala	Cys	Thr	Val	Leu	Phe	Met	Leu	275	280	285	
Leu	Tyr	Phe	Phe	Thr	Met	Ala	Gly	Thr	Val	Trp	Trp	Val	Ile	Leu	Thr	290	295	300	
Ile	Thr	Trp	Phe	Leu	Ala	Ala	Gly	Arg	Lys	Trp	Ser	Cys	Glu	Ala	Ile	305	310	315	320
Glu	Gln	Lys	Ala	Val	Trp	Phe	His	Ala	Val	Ala	Trp	Gly	Thr	Pro	Gly	325	330	335	
Phe	Leu	Thr	Val	Met	Leu	Leu	Ala	Leu	Asn	Lys	Val	Glu	Gly	Asp	Asn	340	345	350	
Ile	Ser	Gly	Val	Cys	Phe	Val	Gly	Leu	Tyr	Asp	Leu	Asp	Ala	Ser	Arg	355	360	365	
Tyr	Phe	Val	Leu	Leu	Pro	Leu	Cys	Leu	Cys	Val	Phe	Val	Gly	Leu	Ser	370	375	380	
Leu	Leu	Leu	Ala	Gly	Ile	Ile	Ser	Leu	Asn	His	Val	Arg	Gln	Val	Ile	385	390	395	400
Gln	His	Asp	Gly	Arg	Asn	Gln	Glu	Lys	Leu	Lys	Lys	Phe	Met	Ile	Arg	405	410	415	
Ile	Gly	Val	Phe	Ser	Gly	Leu	Tyr	Leu	Val	Pro	Leu	Val	Thr	Leu	Leu	420	425	430	
Gly	Cys	Tyr	Val	Tyr	Glu	Gln	Val	Asn	Arg	Ile	Thr	Trp	Glu	Ile	Thr	435	440	445	
Trp	Val	Ser	Asp	His	Cys	Arg	Gln	Tyr	His	Ile	Pro	Cys	Pro	Tyr	Gln	450	455	460	
Ala	Lys	Ala	Lys	Ala	Arg	Pro	Glu	Leu	Ala	Leu	Phe	Met	Ile	Lys	Tyr	465	470	475	480
Leu	Met	Thr	Leu	Ile	Val	Gly	Ile	Ser	Ala	Val	Phe	Trp	Val	Gly	Ser	485	490	495	
Lys	Lys	Thr	Cys	Thr	Glu	Trp	Ala	Gly	Phe	Phe	Lys	Arg	Asn	Arg	Lys	500	505	510	
Arg	Asp	Pro	Ile	Ser	Glu	Ser	Arg	Arg	Val	Leu	Gln	Glu	Ser	Cys	Glu	515	520	525	

Phe Phe Leu Lys His Asn Ser Lys Val Lys His Lys Lys Lys His Tyr
 530 535 540
 Lys Pro Ser Ser His Lys Leu Lys Val Ile Ser Lys Ser Met Gly Thr
 545 550 555 560
 Ser Thr Gly Ala Thr Ala Asn His Gly Thr Ser Ala Val Ala Ile Thr
 565 570 575
 Ser His Asp Tyr Leu Gly Gln Glu Thr Leu Thr Glu Ile Gln Thr Ser
 580 585 590
 Pro Glu Thr Ser Met Arg Glu Val Lys Ala Asp Gly Ala Ser Thr Pro
 595 600 605
 Arg Leu Arg Glu Gln Asp Cys Gly Glu Pro Ala Ser Pro Ala Ala Ser
 610 615 620
 Ile Ser Arg Leu Ser Gly Glu Gln Val Asp Gly Lys Gly Gln Ala Gly
 625 630 635 640
 Ser Val Ser Glu Ser Ala Arg Ser Glu Gly Arg Ile Ser Pro Lys Ser
 645 650 655
 Asp Ile Thr Asp Thr Gly Leu Ala Gln Ser Asn Asn Leu Gln Val Pro
 660 665 670
 Ser Ser Ser Glu Pro Ser Ser Leu Lys Gly Ser Thr Ser Leu Leu Val
 675 680 685
 His Pro Val Ser Gly Val Arg Lys Glu Gln Gly Gly Gly Cys His Ser
 690 695 700
 Asp Thr
 705

<210> 9
 <211> 574
 <212> PRT
 <213> Homo sapiens .

<400> 9
 Met Arg Asp Pro Gly Ala Ala Ala Pro Leu Ser Ser Leu Gly Leu Cys
 1 5 10 15
 Ala Leu Val Leu Ala Leu Leu Gly Ala Leu Ser Ala Gly Ala Gly Ala
 20 25 30
 Gln Pro Tyr His Gly Glu Lys Gly Ile Ser Val Pro Asp His Gly Phe
 35 40 45
 Cys Gln Pro Ile Ser Ile Pro Leu Cys Thr Asp Ile Ala Tyr Asn Gln
 50 55 60
 Thr Ile Leu Pro Asn Leu Leu Gly His Thr Asn Gln Glu Asp Ala Gly
 65 70 75 80

Leu	Glu	Val	His	Gln	Phe	Tyr	Pro	Leu	Val	Lys	Val	Gln	Cys	Ser	Pro	85	90	95	
Glu	Leu	Arg	Phe	Phe	Leu	Cys	Ser	Met	Tyr	Ala	Pro	Val	Cys	Thr	Val	100	105	110	
Leu	Asp	Gln	Ala	Ile	Pro	Pro	Cys	Arg	Ser	Leu	Cys	Glu	Arg	Ala	Arg	115	120	125	
Gln	Gly	Cys	Glu	Ala	Leu	Met	Asn	Lys	Phe	Gly	Phe	Gln	Trp	Pro	Glu	130	135	140	
Arg	Leu	Arg	Cys	Glu	Asn	Phe	Pro	Val	His	Gly	Ala	Gly	Glu	Ile	Cys	145	150	155	160
Val	Gly	Gln	Asn	Thr	Ser	Asp	Gly	Ser	Gly	Gly	Pro	Gly	Gly	Gly	Pro	165	170	175	
Thr	Ala	Tyr	Pro	Thr	Ala	Pro	Tyr	Leu	Pro	Asp	Leu	Pro	Phe	Thr	Ala	180	185	190	
Leu	Pro	Pro	Gly	Ala	Ser	Asp	Gly	Arg	Gly	Arg	Pro	Ala	Phe	Pro	Phe	195	200	205	
Ser	Cys	Pro	Arg	Gln	Leu	Lys	Val	Pro	Pro	Tyr	Leu	Gly	Tyr	Arg	Phe	210	215	220	
Leu	Gly	Glu	Arg	Asp	Cys	Gly	Ala	Pro	Cys	Glu	Pro	Gly	Arg	Ala	Asn	225	230	235	240
Gly	Leu	Met	Tyr	Phe	Lys	Glu	Glu	Glu	Arg	Arg	Phe	Ala	Arg	Leu	Trp	245	250	255	
Val	Gly	Val	Trp	Ser	Val	Leu	Cys	Cys	Ala	Ser	Thr	Leu	Phe	Thr	Val	260	265	270	
Leu	Thr	Tyr	Leu	Val	Asp	Met	Arg	Arg	Phe	Ser	Tyr	Pro	Glu	Arg	Pro	275	280	285	
Ile	Ile	Phe	Leu	Ser	Gly	Cys	Tyr	Phe	Met	Val	Ala	Val	Ala	His	Val	290	295	300	
Ala	Gly	Phe	Leu	Leu	Glu	Asp	Arg	Ala	Val	Cys	Val	Glu	Arg	Phe	Ser	305	310	315	320
Asp	Asp	Gly	Tyr	Arg	Thr	Val	Ala	Gln	Gly	Thr	Lys	Lys	Glu	Gly	Cys	325	330	335	
Thr	Ile	Leu	Phe	Met	Val	Leu	Tyr	Phe	Phe	Gly	Met	Ala	Ser	Ser	Ile	340	345	350	
Trp	Trp	Val	Ile	Leu	Ser	Leu	Thr	Trp	Phe	Leu	Ala	Ala	Gly	Met	Lys	355	360	365	
Trp	Gly	His	Glu	Ala	Ile	Glu	Ala	Asn	Ser	Gln	Tyr	Phe	His	Leu	Ala	370	375	380	

Ala Trp Ala Val Pro Ala Val Lys Thr Ile Thr Ile Leu Ala Met Gly
 385 390 395 400

Gln Val Asp Gly Asp Leu Leu Ser Gly Val Cys Tyr Val Gly Leu Ser
 405 410 415

Ser Val Asp Ala Leu Arg Gly Phe Val Leu Ala Pro Leu Phe Val Tyr
 420 425 430

Leu Phe Ile Gly Thr Ser Phe Leu Leu Ala Gly Phe Val Ser Leu Phe
 435 440 445

Arg Ile Arg Thr Ile Met Lys His Asp Gly Thr Lys Thr Glu Lys Leu
 450 455 460

Glu Lys Leu Met Val Arg Ile Gly Val Phe Ser Val Leu Tyr Thr Val
 465 470 475 480

Pro Ala Thr Ile Val Leu Ala Cys Tyr Phe Tyr Glu Gln Ala Phe Arg
 485 490 495

Glu His Trp Glu Arg Thr Trp Leu Leu Gln Thr Cys Lys Ser Tyr Ala
 500 505 510

Val Pro Cys Pro Pro Gly His Phe Pro Pro Met Ser Pro Asp Phe Thr
 515 520 525

Val Phe Met Ile Lys Tyr Leu Met Thr Met Ile Val Gly Ile Thr Thr
 530 535 540

Gly Phe Trp Ile Trp Ser Gly Lys Thr Leu Gln Ser Trp Arg Arg Phe
 545 550 555 560

Tyr His Arg Leu Ser His Ser Ser Lys Gly Glu Thr Ala Val
 565 570

<210> 10
 <211> 694
 <212> PRT
 <213> Homo sapiens

<400> 10
 Met Glu Trp Gly Tyr Leu Leu Glu Val Thr Ser Leu Leu Ala Ala Leu
 1 5 10 15

Ala Leu Leu Gln Arg Ser Ser Gly Ala Ala Ala Ala Ser Ala Lys Glu
 20 25 30

Leu Ala Cys Gln Glu Ile Thr Val Pro Leu Cys Lys Gly Ile Gly Tyr
 35 40 45

Asn Tyr Thr Tyr Met Pro Asn Gln Phe Asn His Asp Thr Gln Asp Glu
 50 55 60

Ala Gly Leu Glu Val His Gln Phe Trp Pro Leu Val Glu Ile Gln Cys
 65 70 75 80

Ser	Pro	Asp	Leu	Lys	Phe	Phe	Leu	Cys	Ser	Met	Tyr	Thr	Pro	Ile	Cys	
				85					90					95		
Leu	Glu	Asp	Tyr	Lys	Lys	Pro	Leu	Pro	Pro	Cys	Arg	Ser	Val	Cys	Glu	
			100					105					110			
Arg	Ala	Lys	Ala	Gly	Cys	Ala	Pro	Leu	Met	Arg	Gln	Tyr	Gly	Phe	Ala	
		115					120					125				
Trp	Pro	Asp	Arg	Met	Arg	Cys	Asp	Arg	Leu	Pro	Glu	Gln	Gly	Asn	Pro	
	130					135					140					
Asp	Thr	Leu	Cys	Met	Asp	Tyr	Asn	Arg	Thr	Asp	Leu	Thr	Thr	Ala	Ala	
145					150					155					160	
Pro	Ser	Pro	Pro	Arg	Arg	Leu	Pro	Pro	Pro	Pro	Pro	Gly	Glu	Gln	Pro	
				165				170						175		
Pro	Ser	Gly	Ser	Gly	His	Gly	Arg	Pro	Pro	Gly	Ala	Arg	Pro	Pro	His	
		180						185					190			
Arg	Gly	Gly	Gly	Arg	Gly	Gly	Gly	Gly	Gly	Asp	Ala	Ala	Ala	Pro	Pro	
	195						200					205				
Ala	Arg	Gly	Gly	Gly	Gly	Gly	Gly	Lys	Ala	Arg	Pro	Pro	Gly	Gly	Gly	
	210					215					220					
Ala	Ala	Pro	Cys	Glu	Pro	Gly	Cys	Gln	Cys	Arg	Ala	Pro	Met	Val	Ser	
225					230					235					240	
Val	Ser	Ser	Glu	Arg	His	Pro	Leu	Tyr	Asn	Arg	Val	Lys	Thr	Gly	Gln	
			245						250					255		
Ile	Ala	Asn	Cys	Ala	Leu	Pro	Cys	His	Asn	Pro	Phe	Phe	Ser	Gln	Asp	
		260						265					270			
Glu	Arg	Ala	Phe	Thr	Val	Phe	Trp	Ile	Gly	Leu	Trp	Ser	Val	Leu	Cys	
	275						280					285				
Phe	Val	Ser	Thr	Phe	Ala	Thr	Val	Ser	Thr	Phe	Leu	Ile	Asp	Met	Glu	
	290					295					300					
Arg	Phe	Lys	Tyr	Pro	Glu	Arg	Pro	Ile	Ile	Phe	Leu	Ser	Ala	Cys	Tyr	
305					310					315					320	
Leu	Phe	Val	Ser	Val	Gly	Tyr	Leu	Val	Arg	Leu	Val	Ala	Gly	His	Glu	
			325						330					335		
Lys	Val	Ala	Cys	Ser	Gly	Gly	Ala	Pro	Gly	Ala	Gly	Gly	Ala	Gly	Gly	
		340						345					350			
Ala	Gly	Gly	Ala	Ala	Ala	Gly	Ala	Gly	Ala	Ala	Gly	Ala	Gly	Ala	Gly	
	355						360					365				
Gly	Pro	Gly	Gly	Arg	Gly	Glu	Tyr	Glu	Glu	Leu	Gly	Ala	Val	Glu	Gln	
	370					375					380					

His	Val	Arg	Tyr	Glu	Thr	Thr	Gly	Pro	Ala	Leu	Cys	Thr	Val	Val	Phe	385	390	395	400
Leu	Leu	Val	Tyr	Phe	Phe	Gly	Met	Ala	Ser	Ser	Ile	Trp	Trp	Val	Ile	405	410	415	
Leu	Ser	Leu	Thr	Trp	Phe	Leu	Ala	Ala	Gly	Met	Lys	Trp	Gly	Asn	Glu	420	425	430	
Ala	Ile	Ala	Gly	Tyr	Ser	Gln	Tyr	Phe	His	Leu	Ala	Ala	Trp	Leu	Val	435	440	445	
Pro	Ser	Val	Lys	Ser	Ile	Ala	Val	Leu	Ala	Leu	Ser	Ser	Val	Asp	Gly	450	455	460	
Asp	Pro	Val	Ala	Gly	Ile	Cys	Tyr	Val	Gly	Asn	Gln	Ser	Leu	Asp	Asn	465	470	475	480
Leu	Arg	Gly	Phe	Val	Leu	Ala	Pro	Leu	Val	Ile	Tyr	Leu	Phe	Ile	Gly	485	490	495	
Thr	Met	Phe	Leu	Leu	Ala	Gly	Phe	Val	Ser	Leu	Phe	Arg	Ile	Arg	Ser	500	505	510	
Val	Ile	Lys	Gln	Gln	Asp	Gly	Pro	Thr	Lys	Thr	His	Lys	Leu	Glu	Lys	515	520	525	
Leu	Met	Ile	Arg	Leu	Gly	Leu	Phe	Thr	Val	Leu	Tyr	Thr	Val	Pro	Ala	530	535	540	
Ala	Val	Val	Val	Ala	Cys	Leu	Phe	Tyr	Glu	Gln	His	Asn	Arg	Pro	Arg	545	550	555	560
Trp	Glu	Ala	Thr	His	Asn	Cys	Pro	Cys	Leu	Arg	Asp	Leu	Gln	Pro	Asp	565	570	575	
Gln	Ala	Arg	Arg	Pro	Asp	Tyr	Ala	Val	Phe	Met	Leu	Lys	Tyr	Phe	Met	580	585	590	
Cys	Leu	Val	Val	Gly	Ile	Thr	Ser	Gly	Val	Trp	Val	Trp	Ser	Gly	Lys	595	600	605	
Thr	Leu	Glu	Ser	Trp	Arg	Ser	Leu	Cys	Thr	Arg	Cys	Cys	Trp	Ala	Ser	610	615	620	
Lys	Gly	Ala	Ala	Val	Gly	Gly	Gly	Ala	Gly	Ala	Thr	Ala	Ala	Gly	Gly	625	630	635	640
Gly	Gly	Gly	Pro	Gly	Gly	Gly	Gly	Gly	Gly	Gly	Pro	Gly	Gly	Gly	Gly	645	650	655	
Gly	Pro	Gly	Gly	Gly	Gly	Gly	Ser	Leu	Tyr	Ser	Asp	Val	Ser	Thr	Gly	660	665	670	
Leu	Thr	Trp	Arg	Ser	Gly	Thr	Ala	Ser	Ser	Val	Ser	Tyr	Pro	Lys	Gln	675	680	685	

Met Pro Leu Ser Gln Val
690

<210> 11
<211> 591
<212> PRT
<213> Homo sapiens

<400> 11
Met Ala Val Ala Pro Leu Arg Gly Ala Leu Leu Leu Trp Gln Leu Leu
1 5 10 15
Ala Ala Gly Gly Ala Ala Leu Glu Ile Gly Arg Phe Asp Pro Glu Arg
20 25 30
Gly Arg Gly Ala Ala Pro Cys Gln Ala Val Glu Ile Pro Met Cys Arg
35 40 45
Gly Ile Gly Tyr Asn Leu Thr Arg Met Pro Asn Leu Leu Gly His Thr
50 55 60
Ser Gln Gly Glu Ala Ala Ala Glu Leu Ala Glu Phe Ala Pro Leu Val
65 70 75 80
Gln Tyr Gly Cys His Ser His Leu Arg Phe Phe Leu Cys Ser Leu Tyr
85 90 95
Ala Pro Met Cys Thr Asp Gln Val Ser Thr Pro Ile Pro Ala Cys Arg
100 105 110
Pro Met Cys Glu Gln Ala Arg Leu Arg Cys Ala Pro Ile Met Glu Gln
115 120 125
Phe Asn Phe Gly Trp Pro Asp Ser Leu Asp Cys Ala Arg Leu Pro Thr
130 135 140
Arg Asn Asp Pro His Ala Leu Cys Met Glu Ala Pro Glu Asn Ala Thr
145 150 155 160
Ala Gly Pro Ala Glu Pro His Lys Gly Leu Gly Met Leu Pro Val Ala
165 170 175
Pro Arg Pro Ala Arg Pro Pro Gly Asp Leu Gly Pro Gly Ala Gly Gly
180 185 190
Ser Gly Thr Cys Glu Asn Pro Glu Lys Phe Gln Tyr Val Glu Lys Ser
195 200 205
Arg Ser Cys Ala Pro Arg Cys Gly Pro Gly Val Glu Val Phe Trp Ser
210 215 220
Arg Arg Asp Lys Asp Phe Ala Leu Val Trp Met Ala Val Trp Ser Ala
225 230 235 240
Leu Cys Phe Phe Ser Thr Ala Phe Thr Val Leu Thr Phe Leu Leu Glu
245 250 255

Pro	His	Arg	Phe 260	Gln	Tyr	Pro	Glu	Arg 265	Pro	Ile	Ile	Phe	Leu 270	Ser	Met
Cys	Tyr	Asn 275	Val	Tyr	Ser	Leu	Ala 280	Phe	Leu	Ile	Arg	Ala 285	Val	Ala	Gly
Ala	Gln 290	Ser	Val	Ala	Cys	Asp 295	Gln	Glu	Ala	Gly	Ala 300	Leu	Tyr	Val	Ile
Gln 305	Glu	Gly	Leu	Glu	Asn 310	Thr	Gly	Cys	Thr	Leu 315	Val	Phe	Leu	Leu	Leu 320
Tyr	Tyr	Phe	Gly	Met 325	Ala	Ser	Ser	Leu	Trp 330	Trp	Val	Val	Leu	Thr 335	Leu
Thr	Trp	Phe	Leu 340	Ala	Ala	Gly	Lys	Lys 345	Trp	Gly	His	Glu	Ala 350	Ile	Glu
Ala	His	Gly 355	Ser	Tyr	Phe	His	Met 360	Ala	Ala	Trp	Gly	Leu 365	Pro	Ala	Leu
Lys	Thr 370	Ile	Val	Ile	Leu	Thr 375	Leu	Arg	Lys	Val	Ala 380	Gly	Asp	Glu	Leu
Thr 385	Gly	Leu	Cys	Tyr	Val 390	Ala	Ser	Thr	Asp	Ala 395	Ala	Ala	Leu	Thr	Gly 400
Phe	Val	Leu	Val	Pro 405	Leu	Ser	Gly	Tyr	Leu 410	Val	Leu	Gly	Ser	Ser	Phe
Leu	Leu	Thr	Gly 420	Phe	Val	Ala	Leu	Phe 425	His	Ile	Arg	Lys	Ile 430	Met	Lys
Thr	Gly	Gly 435	Thr	Asn	Thr	Glu	Lys 440	Leu	Glu	Lys	Leu	Met 445	Val	Lys	Ile
Gly 450	Val	Phe	Ser	Ile	Leu	Tyr 455	Thr	Val	Pro	Ala	Thr 460	Cys	Val	Ile	Val
Cys 465	Tyr	Val	Tyr	Glu	Arg 470	Leu	Asn	Met	Asp	Phe 475	Trp	Arg	Leu	Arg	Ala 480
Thr	Glu	Gln	Pro	Cys 485	Ala	Ala	Ala	Ala	Gly 490	Pro	Gly	Gly	Arg	Arg 495	Asp
Cys	Ser	Leu	Pro 500	Gly	Gly	Ser	Val	Pro 505	Thr	Val	Ala	Val	Phe 510	Met	Leu
Lys	Ile 515	Phe	Met	Ser	Leu	Val	Val 520	Gly	Ile	Thr	Ser	Gly 525	Val	Trp	Val
Trp 530	Ser	Ser	Lys	Thr	Phe	Gln 535	Thr	Trp	Gln	Ser	Leu 540	Cys	Tyr	Arg	Lys
Ile 545	Ala	Ala	Gly	Arg 550	Ala	Arg	Ala	Lys	Ala	Cys 555	Arg	Ala	Pro	Gly	Ser 560

Tyr Gly Arg Gly Thr His Cys His Tyr Lys Ala Pro Thr Val Val Leu
565 570 575

His Met Thr Lys Thr Asp Pro Ser Leu Glu Asn Pro Thr His Leu
580 585 590

<210> 12

<211> 581

<212> PRT

<213> Homo sapiens

<400> 12

Met Gln Arg Pro Gly Pro Arg Leu Trp Leu Val Leu Gln Val Met Gly
1 5 10 15

Ser Cys Ala Ala Ile Ser Ser Met Asp Met Glu Arg Pro Gly Asp Gly
20 25 30

Lys Cys Gln Pro Ile Glu Ile Pro Met Cys Lys Asp Ile Gly Tyr Asn
35 40 45

Met Thr Arg Met Pro Asn Leu Met Gly His Glu Asn Gln Arg Glu Ala
50 55 60

Ala Ile Gln Leu His Glu Phe Ala Pro Leu Val Glu Tyr Gly Cys His
65 70 75 80

Gly His Leu Arg Phe Phe Leu Cys Ser Leu Tyr Ala Pro Met Cys Thr
85 90 95

Glu Gln Val Ser Thr Pro Ile Pro Ala Cys Arg Val Met Cys Glu Gln
100 105 110

Ala Arg Leu Lys Cys Ser Pro Ile Met Glu Gln Phe Asn Phe Lys Trp
115 120 125

Pro Asp Ser Leu Asp Cys Arg Lys Leu Pro Asn Lys Asn Asp Pro Asn
130 135 140

Tyr Leu Cys Met Glu Ala Pro Asn Asn Gly Ser Asp Glu Pro Thr Arg
145 150 155 160

Gly Ser Gly Leu Phe Pro Pro Leu Phe Arg Pro Gln Arg Pro His Ser
165 170 175

Ala Gln Glu His Pro Leu Lys Asp Gly Gly Pro Gly Arg Gly Gly Cys
180 185 190

Asp Asn Pro Gly Lys Phe His His Val Glu Lys Ser Ala Ser Cys Ala
195 200 205

Pro Leu Cys Thr Pro Gly Val Asp Val Tyr Trp Ser Arg Glu Asp Lys
210 215 220

Arg Phe Ala Val Val Trp Leu Ala Ile Trp Ala Val Leu Cys Phe Phe
225 230 235 240

Ser	Ser	Ala	Phe	Thr	Val	Leu	Thr	Phe	Leu	Ile	Asp	Pro	Ala	Arg	Phe	
				245					250						255	
Arg	Tyr	Pro	Glu	Arg	Pro	Ile	Ile	Phe	Leu	Ser	Met	Cys	Tyr	Cys	Val	
			260					265					270			
Tyr	Ser	Val	Gly	Tyr	Leu	Ile	Arg	Leu	Phe	Ala	Gly	Ala	Glu	Ser	Ile	
		275					280					285				
Ala	Cys	Asp	Arg	Asp	Ser	Gly	Gln	Leu	Tyr	Val	Ile	Gln	Glu	Gly	Leu	
	290					295					300					
Glu	Ser	Thr	Gly	Cys	Thr	Leu	Val	Phe	Leu	Val	Leu	Tyr	Tyr	Phe	Gly	
305					310					315					320	
Met	Ala	Ser	Ser	Leu	Trp	Trp	Val	Val	Leu	Thr	Leu	Thr	Trp	Phe	Leu	
				325					330					335		
Ala	Ala	Gly	Lys	Lys	Trp	Gly	His	Glu	Ala	Ile	Glu	Ala	Asn	Ser	Ser	
			340					345					350			
Tyr	Phe	His	Leu	Ala	Ala	Trp	Ala	Ile	Pro	Ala	Val	Lys	Thr	Ile	Leu	
		355					360					365				
Ile	Leu	Val	Met	Arg	Arg	Val	Ala	Gly	Asp	Glu	Leu	Thr	Gly	Val	Cys	
	370					375					380					
Tyr	Val	Gly	Ser	Met	Asp	Val	Asn	Ala	Leu	Thr	Gly	Phe	Val	Leu	Ile	
385					390					395					400	
Pro	Leu	Ala	Cys	Tyr	Leu	Val	Ile	Gly	Thr	Ser	Phe	Ile	Leu	Ser	Gly	
			405						410					415		
Phe	Val	Ala	Leu	Phe	His	Ile	Arg	Arg	Val	Met	Lys	Thr	Gly	Gly	Glu	
			420					425					430			
Asn	Thr	Asp	Lys	Leu	Glu	Lys	Leu	Met	Val	Arg	Ile	Gly	Leu	Phe	Ser	
		435					440					445				
Val	Leu	Tyr	Thr	Val	Pro	Ala	Thr	Cys	Val	Ile	Ala	Cys	Tyr	Phe	Tyr	
	450					455					460					
Glu	Arg	Leu	Asn	Met	Asp	Tyr	Trp	Lys	Ile	Leu	Ala	Ala	Gln	His	Lys	
465					470					475					480	
Cys	Lys	Met	Asn	Asn	Gln	Thr	Lys	Thr	Leu	Asp	Cys	Leu	Met	Ala	Ala	
			485						490					495		
Ser	Ile	Pro	Ala	Val	Glu	Ile	Phe	Met	Val	Lys	Ile	Phe	Met	Leu	Leu	
			500					505					510			
Val	Val	Gly	Ile	Thr	Ser	Gly	Met	Trp	Ile	Trp	Thr	Ser	Lys	Thr	Leu	
		515					520					525				
Gln	Ser	Trp	Gln	Gln	Val	Cys	Ser	Arg	Arg	Leu	Lys	Lys	Lys	Ser	Arg	
	530					535					540					

Arg Lys Pro Ala Ser Val Ile Thr Ser Gly Gly Ile Tyr Lys Lys Ala
545 550 555 560

Gln His Pro Gln Lys Thr His His Gly Lys Tyr Glu Ile Pro Ala Gln
565 570 575

Ser Pro Thr Cys Val
580